

IN THE CLAIMS:

1. (Currently Amended) A broadcasting apparatus that broadcasts a specific program to which a reproduction time period between a starting time and a finishing time is specified, the reproduction being performed by a receiving apparatus to display the specific program in the reproduction time period, the broadcasting apparatus comprising:

5 allotment unit ~~operable to allot~~ allocating a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the specific program and the other part of the broadcasting bandwidth to another program, so that the part of the broadcasting bandwidth ~~for the preceding time period allotted to the specific program~~
10 is narrower than the other part of the broadcasting bandwidth ~~allotted to another program~~, the preceding time period being longer than a time period that is necessary for transmitting a program data of the specific program at least once ~~more than once~~ during the part of the broadcasting bandwidth for the preceding time period allotted to the specific program;

script generation unit ~~operable to generate~~ generating (a) when the receiving
15 apparatus receives an event message for instructing storage, a script of instruction for the receiving apparatus to store ~~for storing~~ program data of the specific program in a storage unit of the receiving apparatus, and (b) when the receiving apparatus receives an event message for instructing reproduction, a script of instruction for the receiving apparatus to perform the reproduction to display ~~reproduce~~ the program data of the specific program in a case where the
20 program data of the specific program has been stored in the storage unit, each ~~script~~ of the scripts being automatically stored when the receiving apparatus receives the script;

an event message generation unit ~~operable to generate~~ generating the event message for instructing storage and the event message for instructing reproduction;

transmission unit ~~operable to transmit~~ transmitting a normal program that includes
25 a video stream and an audio stream, and further in accordance with the result of allotment by the allotment unit, (a) repeatedly multiplex program data of the other program with the normal program based on a data carousel transmission method and transmit resultant ~~[[a]]~~ first multiplexed ~~result data~~ while multiplexing the program data of the specific program and the script with the normal program and transmitting a second multiplexed result in prior to the
30 preceding time period, ~~[[and]]~~ (b) repeatedly multiplex ~~[[the]]~~ program data of the specific program, the program data of the other program, and the script with the normal program based on the data carousel transmission method and transmit ~~[[the]]~~ resultant second multiplexed data result in the reproduction preceding time period~~[[;]]~~, and (c) repeatedly multiplex the program data of the specific program and the script with the normal program based on the data carousel
35 transmission method and transmit resultant third multiplexed data in the reproduction time period; and

control unit ~~operable to control~~ controlling the transmission unit to repeatedly transmit event message for instructing storage in the preceding time period and to transmit the event message for instructing reproduction at the starting time,

40 wherein the specific program has the program data that relates to a commercial message which is inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

2.-3. (Cancelled)

4. (Previously Presented) The broadcasting apparatus of Claim 1, further comprising:

a storage unit ~~[[for]]~~ storing as the program data of the specific program (a) first contents data that makes up the specific program and (b) second contents data that is different
5 from the first contents data in part,

wherein the transmission unit transmits the first contents data in the preceding time period and transmits the second contents data in the reproduction time period of the specific program.

5.-8. (Cancelled)

9. (Currently Amended) A broadcasting apparatus that transmits a data broadcasting program and a first and a second specific programs which are inserted in the data broadcasting program, a total time period between a starting time and a finishing time for broadcasting the data broadcasting program including a first time period during which the first specific program is
5 broadcast and a second time period during which the second specific program is broadcast, reproduction being performed by a receiving apparatus to display the specific program in the respective time periods, the broadcasting apparatus comprising:

allotment unit ~~operable to~~

(a) ~~allot~~ allotting a part of the broadcasting bandwidth to the first and the
10 second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of the time periods other than the first and the second time periods in the total time-period, so that the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods is narrower than the other part of the broadcasting bandwidth allotted to the data broadcasting

15 program for all time periods other than the first and the second time periods, all of the time
periods other than the first and the second time periods being longer than the time period
necessary for transmitting a program data of the first specific program and a program data of the
second specific program ~~more than~~ at least once during the part of the broadcasting bandwidth
allotted to the first and the second specific programs for all time periods other than the first and
20 the second time periods, and

(b) ~~allot~~ allotting a part of the broadcasting bandwidth to the first specific
program and the other part of the broadcasting bandwidth to the second specific program for the
first and the second time periods;

script instruction generation unit ~~operable to~~ (i) ~~generate~~ generating (a) when a
25 receiving apparatus receives a first event message for instructing storage, a script ~~for storing of~~
instruction for the receiving apparatus to store program data of the first specific program in a
storage unit of the receiving apparatus and (b) when the receiving apparatus receives a second
event message for instructing storage, a script ~~for storing of~~ instruction for the receiving
apparatus to store the program data of the second specific program in ~~[[the]]~~ a storage unit of the
30 receiving apparatus and (ii) ~~generate~~ generating (a) when receiving a first event message for
instructing reproduction, a script instructing the receiving apparatus to reproduce the program
data of the first specific program in a case that the program data of the first specific program has
been stored in the storage unit and (b) when receiving a second event message for instructing
reproduction, a script for the receiving apparatus to reproduce the program data of the second
35 specific program in a case that the program data of the second specific program has been stored
in the storage unit, each script being automatically stored when the receiving apparatus receives
the script;

an event message generation unit ~~operable to generate~~ generating the plurality of
event messages for instructing storage and the plurality of event messages for instructing
40 reproduction;

transmission unit ~~operable to transmit~~ transmitting a normal program that includes
a video stream and an audio stream, and

(a) repeatedly transmit the scripts during the total time period, and

(b) in accordance with the result of allotment by the allotment unit,

45 (i) repeatedly multiplex the program data of the data broadcasting
program during all of time periods other than the first and the second time periods in the total
time period, and

(ii) repeatedly multiplex the program data of each of the first and the
second specific programs during the total time period; and

50 control unit ~~operable to control~~ controlling the transmission unit so as to transmit
(a) the first event message for instructing storage before the first time period (b) the first event
message for instructing reproduction at the starting time of the first time period (c) the second
event message for instructing storage before the second time period, and (d) the second event
message for instructing reproduction at the starting time of the second time period,

55 wherein in accordance with the result of allotment by the allotment unit,
repeatedly multiplex program data of the first and second specific program with the normal
program based on a data carousel transmission method and transmit a first multiplexed result
while multiplexing the program data of the first and second specific programs and the script with
the normal program and transmitting a second multiplexed result in the preceding time period,
60 and repeatedly multiplex the program data of the specific first and second programs and the

script with the normal program and transmit the second multiplexed result in the reproduction time period,

the first specific program and the second specific program respectively have the program data that relates to a first commercial program and a second commercial program which
65 are inserted in the normal program, and

the first time period and the second time period respectively are the same as broadcast time periods of the first commercial program and the second commercial program.

10. (Cancelled)

11. (Currently Amended) The broadcasting apparatus of Claim 9, further comprising:

storage unit ~~operable to store~~ storing as the program data of the first specific program (a) first contents data that makes up the first specific program and (b) second contents data that is different from the first contents data in part,

5 wherein the transmission unit transmits the first contents data in a time period other than the first time period in the total time period, and transmits the second contents data in the first time period.

12. (Currently Amended) A broadcasting apparatus that transmits a data broadcasting program and a first and a second specific programs which are inserted in the data broadcasting program, the reproduction being performed by a receiving apparatus to display the specific programs in specific reproduction time periods, the broadcasting apparatus comprising:

5 allotment unit ~~operable to~~ allocating

(a) ~~allot~~ a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the

second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and

10 (b) ~~allot~~ (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second time period (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the total time period, so that the part of the broadcasting bandwidth allotted to the first specific program for the time period preceding to the first time period is narrower than the
15 broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the first time period, the time period preceding to the first time period being longer than a time period that is necessary for transmitting a program data of the first specific program ~~more than~~ at least once during the part of the broadcasting bandwidth allotted to the first specific program for the time period preceding to the first time period, and (3) a part of the broadcasting bandwidth to
20 the second specific program for a time period preceding to the second time period in the total time period, so that the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period is narrower than the broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the second time period, the time period preceding to the second time period being longer than
25 a time period that is necessary for transmitting a program data of the second specific program ~~more than~~ at least once during the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period;

 script instruction unit ~~operable to~~ (i) ~~generate~~ generating (a) when ~~[[a]]~~ the receiving apparatus receives a first event message for instructing storage, a script ~~for storing of~~
30 instruction for the receiving apparatus to store the program data of the first specific program in a storage unit of the receiving apparatus and (b) when the receiving apparatus receives a second

event message for instructing storage, a script ~~for storing~~ of instruction for the receiving apparatus to store the program data of the second specific program in the storage unit and (ii) ~~generate~~ generating (a) when receiving a first event message for instructing reproduction, a script
35 instructing the receiving apparatus to reproduce the program data of the first specific program in a case that the program data of the specific program has been stored in the storage unit and (b) when receiving a second event message for instructing reproduction, a script instructing the receiving apparatus to reproduce the program data of the second specific program in a case that the program data of the second specific program has been stored in the storage unit, each script
40 being automatically stored when the receiving apparatus receives the script;

an event message generation unit ~~operable to generate~~ generating a plurality of event messages for instructing storage and a plurality of event messages for instructing reproduction;

transmission unit ~~operable to transmit~~ transmitting a normal program that includes
45 a video stream and an audio stream and

(a) repeatedly transmit during the total time period, and
(b) in accordance with the result of allotment by the allotment unit,
(i) transmit repeatedly the program data of the data broadcasting program during all of time periods other than the first and the second time periods in the total
50 time period,

(ii) repeatedly multiplex the program data of the first specific program during the first time period and the time period preceding to the first time period, and

(iii) repeatedly multiplex the program data of the second specific program during the second time period and the time period preceding to the second time period;

55 and

control unit ~~operable to control~~ controlling the transmission unit so as to transmit

(i) a plurality of the first event messages for instructing storage before the first time period (ii) a plurality of the second event messages for instructing storage before the second time period (iii) the first event message for instructing reproduction at the starting time of the first time period,
60 and (iv) the second event message for instructing reproduction at the starting time of the second time period,

wherein in accordance with the result of allotment by the allotment unit, repeatedly multiplex program data of the first and second specific program with the normal program based on a data carousel transmission method and transmit a first multiplexed ~~result~~
65 data while multiplexing the program data of the first and second specific programs and the script with the normal program and transmitting a second multiplexed result in the preceding time period, and repeatedly multiplex the program data of the specific first and second programs and the script with the normal program and transmit the second multiplexed ~~result~~ data in the reproduction time period,

70 the first specific program and the second specific program respectively have the program data that relates to a first commercial program and a second commercial program which are inserted in the normal program, and

the first time period and the second time period respectively are the same as broadcast time periods of the first commercial program and the second commercial program.

75 13. (Cancelled)

14. (Currently Amended) The broadcasting apparatus of Claim 12, further comprising:

storage unit ~~operable to store~~ storing as the program data of the first specific program (a) first contents data that makes up the first specific program and (b) second contents data that is different from the first contents data in part,

wherein the transmission unit transmits the first contents data in a time period preceding to the first time period in the total time period, and transmits the second contents data in the first time period.

15. (Currently Amended) A broadcasting method for broadcasting a specific program to which a reproduction time period between a starting time and a finishing time is specified, the reproduction being performed by a receiving apparatus to display the specific program in the reproduction time period, the broadcasting method comprising the steps of:

an allotment step for allotting, with an allotment unit, a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the specific program and the other part of the broadcasting bandwidth to another program, so that the part of the broadcasting bandwidth ~~for the preceding time period allotted to the specific program~~ is narrower than the other part of the broadcasting bandwidth ~~allotted to another program~~, the preceding time period being longer than a time period that is necessary for transmitting a program data of the specific program ~~more than~~ at least once during the part of the broadcasting bandwidth for the preceding time period allotted to the specific program;

a script generation step for generating, with a script generation unit, (a) when the receiving apparatus receives ~~[[a]]~~ an event message for instructing storage, a script ~~for storing of~~ instruction for the receiving apparatus to store program data of the specific program in a storage unit of the receiving apparatus, and (b) when the receiving apparatus receives an event message

for instructing reproduction, a script of instruction for the receiving apparatus to ~~reproduce~~
perform the reproduction to display the program data of the specific program in a case where the
20 program data of the specific program has been stored in the storage unit, each script being
automatically stored when the receiving apparatus receives the script;

an event message generation step for generating, with an event generation unit, a
plurality of event messages for instructing storage and an event message for instructing
reproduction;

25 a transmission step for transmitting, with a transmission unit, a normal program
that includes a video stream and an audio stream, and further in accordance with the result of
allotment in the allotment step, (a) repeatedly multiplex program data of the other program with
the normal program based on a data carousel transmission method and transmit ~~[[a]] resultant~~
first multiplexed result data ~~while multiplexing the program data of the specific program and the~~
30 ~~script with the normal program and transmitting a second multiplexed result in prior to~~ the
preceding time period, and (b) repeatedly multiplex ~~[[the]]~~ program data of the specific program,
the program data of the other program and the script with the normal program based on the data
carousel transmission method and transmit ~~[[the]] resultant~~ second multiplexed result data in the
reproduction preceding time period; and (c) repeatedly multiplex the program data of the specific
35 program and the script with the normal program based on the data carousel transmission method
and transmit resultant third multiplexed data in the reproduction time period; and

a control step ~~operable~~ for controlling, with a control unit, ~~[[a]]~~ the transmission
unit to transmit the plurality of event messages for instructing storage in the preceding time
period and to transmit the event message for instructing reproduction at the starting time,

40 wherein the specific program has the program data that relates to a commercial
message which is inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

16. (Currently Amended) A broadcasting method for broadcasting a data broadcasting program and a first specific program and a second specific program which are inserted in the data broadcasting program, a total time period between a starting time and a finishing time for broadcasting the data broadcasting program including a first time period during which the first specific program is broadcast and a second time period during which the second specific program is broadcast, reproduction being performed by a receiving apparatus to display the specific program in the respective time periods, the broadcasting method comprising the steps of:

an allotment step for

(a) allotting, with an allocating unit, a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of time periods other than the first and the second time periods in the total time period, so that the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods is narrower than the other part of the broadcasting bandwidth allotted to the data broadcasting program for all time periods other than the first and the second time periods, all of the time periods other than the first and the second time periods being longer than the time period necessary for transmitting a program data of the first specific program and a program data of the second specific program ~~more than~~ at least once during the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods, and

(b) allotting a part of the broadcasting bandwidth to the first specific program and the other part of the broadcasting bandwidth to the second specific program for the first and the second time periods;

25 a script instruction generation step for (i) generating, with a script generator, (a) when a receiving apparatus receives a first event message for instructing storage, a script for ~~storing~~ of instruction for the receiving apparatus to store program data of the first specific program in a storage unit of the receiving apparatus and (b) when receiving a second event message for instructing storage, a script ~~for storing~~ of instruction for the receiving apparatus to
30 store program data of the second specific program in the storage unit, and (ii) generating (a) when receiving a first event message for instructing reproduction, a script for the receiving apparatus to reproduce the program data of the first specific program in a case that the program data of the specific program has been stored in the storage unit and (b) when receiving a second event message for instructing reproduction, a script for the receiving apparatus to reproduce the
35 program data of the second specific program in a case that the program data of the second specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event message generator, a plurality of event messages for instructing storage and a plurality of event messages
40 for instruction reproduction; and

a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream, and

(a) repeatedly transmitting the scripts during the total time period, transmitting the first event messages for instructing storage before the first time period (ii) the
45 first event message for instruction reproduction at the starting time of the first time period (iii)

the second event messages for instructing storage before the second time period, and (iv) the second event message for instruction reproduction at the starting time of the second time period, and

(b) in accordance with the result of allotment by the allotment step,

50 (i) repeatedly multiplex the program data of the data broadcasting program during all of time periods other than the first and second time periods in the total time period, and with the normal program based on a data carousel transmission unit,

(ii) repeatedly multiplex the program data of each of the first and the second specific programs during the total time period with the normal program;

55 wherein, the first and the second specific programs have the program data that relates to first and second commercial messages, respectively, which are inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

17. (Currently Amended) A broadcasting method for broadcasting a data broadcasting program and a first specific program and a second specific program which are inserted in the data broadcasting program, reproduction being performed by a receiving apparatus to display the specific program in the respective time period, the broadcasting method
5 comprising the steps of:

an allotment step for (a) allotting, with an allocating unit, a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting

10 program, and (b) allotting (1) a broadcasting bandwidth to the data broadcasting data program in
the total time period except for the first time period and the second time period (2) a part of the
broadcasting bandwidth to the first specific program for a time period preceding to the first time
period in the total time period, so that the part of the broadcasting bandwidth allotted to the first
specific program for the time period preceding to the first time period is narrower than the
15 broadcasting bandwidth allotted to the data broadcasting program for the time period preceding
to the first time period, the time period preceding to the first time period being longer than a time
period that is necessary for transmitting a program data of the first specific program ~~more than~~ at
least once during the part of the broadcasting bandwidth allotted to the first specific program for
the time period preceding to the first time period, and (3) a part of the broadcasting bandwidth to
20 the second specific program for a time period preceding to the second time period in the total
time period, so that the part of the broadcasting bandwidth allotted to the second specific
program for the time period preceding to the second time period is narrower than the
broadcasting bandwidth allotted to the data broadcasting program for the time period preceding
to the second time period, the time period preceding to the second time period being longer than
25 a time period that is necessary for transmitting a program data of the second specific program
~~more than~~ at least once during the part of the broadcasting bandwidth allotted to the second
specific program for the time period preceding to the second time period;

a script instruction generation step for (i) generating, with a script instruction
generation unit, (a) when receiving a first event message for instructing storage, a script for
30 storing of instruction for the receiving apparatus to store program data of the first specific
program in a storage unit of [[a]] the receiving apparatus and (b) when receiving a second event
message for instructing storage, a script ~~for storing~~ of instruction for the receiving apparatus to
store program data of the second specific program in the storage unit, and (ii) generating (a)

when receiving a first event message for instructing reproduction, a script instructing the
35 receiving apparatus to reproduce the program data of the first specific program in a case that the
program data of the specific program has been stored in the storage unit and (b) when receiving a
second event message for instructing reproduction, a script instructing the receiving apparatus to
reproduce the program data of the second specific program in a case that the program data of the
second specific program has been stored in the storage unit, each script being automatically
40 stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event message
generator, a plurality of first event messages for instructing storage, a plurality of second event
messages for instructing storage, a first event message for instructing reproduction and a second
event message for instructing reproduction; and

45 a transmission step for transmitting, with a transmission unit, a normal program
that includes a video stream and an audio stream and further in accordance with the allotment
step

repeatedly transmitting (i) the first event messages for instructing storage before
the first time period (ii) the second event messages for instructing storage before the second time
50 period (iii) the first event message for instructing reproduction at the starting time of the first
time period, and (iv) the second event message for instructing reproduction at the starting time of
the second time period, during the total time period, and

(b) in accordance with the result of allotment by the allotment unit,

(i) repeatedly multiplexing the program data of the data broadcasting
55 program during all of time periods other than the first and the second time periods in the total
time period,

(ii) repeatedly multiplexing the program data of the first specific program during the first time period and the time period preceding to the first time period, and

(iii) repeatedly multiplexing the program data of the second specific program during the second time period and the time period preceding to the second time period;
and

wherein, in accordance with the result of allotment by the allotment unit, repeatedly multiplex program data of the first and second specific program with the normal program based on a data carousel transmission method and transmit a first multiplexed result while multiplexing the program data of the first and second specific programs and the script with the normal program and transmitting a second multiplexed result in the preceding time period, and repeatedly multiplex the program data of the specific first and second programs and the script with the normal program and transmit the second multiplexed result in the reproduction time period,

the first and the second specific programs have the program data that relates to first and second commercial messages, respectively, which are inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

18. (Currently Amended) A program recording medium storing instructions of a data broadcast program which [[is]] are readable [[for]] by a computer, in a broadcasting apparatus, to perform operations to enable the broadcasting apparatus ~~broadcasts~~ to broadcast a specific program to which a reproduction time period between a starting time and finishing time is specified, the reproduction being performed by a receiving apparatus, to display the specific

program in the reproduction time period, a computer the data broadcast program embodied on
the program recording medium has the computer conduct the steps of:

an allotment step for allotting a broadcasting bandwidth for the reproduction time
period to the specific program and allotting a part of the broadcasting bandwidth for a preceding
10 time period immediately before the reproduction time period to the specific program and the
other part of the broadcasting bandwidth to ~~other~~ another program, so that the part of the
broadcasting bandwidth ~~for the preceding time period allotted to the specific program~~ is
narrower than the other part of the broadcasting bandwidth ~~allotted to another program~~, the
preceding time period being longer than a time period that is necessary for transmitting a
15 program data of the specific program ~~more than~~ at least once during the part of the broadcasting
bandwidth for the preceding time period allotted to the specific program;

a script generation step for generating (a) when the receiving apparatus receives
an event message for instructing storage, a script ~~for storing~~ of instruction for the receiving
apparatus to store program data of the specific program in a storage unit of the receiving
20 apparatus, and (b) when the receiving apparatus receives an event message for instructing
reproduction, a script of instruction for the receiving apparatus to ~~reproduce~~ perform the
reproduction to display the program data of the specific program in a case where the program
data of the specific program has been stored in the storage unit, each script being automatically
stored when the receiving apparatus receives the ~~scripts~~ script;

25 [[a]] an event message generation step for generating a plurality of event ~~message~~
messages for instructing storage and an event message for instructing reproduction; and

in accordance with the result of allotment by [[the]] an allotment unit, repeatedly
multiplex program data of the first and second specific ~~program~~ programs with [[the]] a normal
program based on a data carousel transmission method and transmit a first multiplexed ~~result~~

30 data while multiplexing the program data of the first and second specific programs and [[the]] a
script of instruction for the receiving apparatus to store data with the normal program and
transmitting a second multiplexed ~~result~~ data in the preceding time period, and repeatedly
multiplex the program data of the specific first and second programs and the script of instruction
with the normal program and transmit the second multiplexed ~~result~~ data in the reproduction time
35 period,

a control step for controlling [[the]] a transmission unit to transmit the event
messages for instructing storage in the preceding time period and to transmit the event message
for instructing reproduction at the starting time,

wherein, the specific program has the program data that relates to a commercial
40 message which is inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast
time period of the commercial message.

19. (Currently Amended) A program recording medium storing instructions on a data
broadcast program which [[is]] are readable [[for]] by a computer, in a broadcasting apparatus, to
perform operations to enable the broadcasting apparatus ~~transmits to~~ transmit a data broadcasting
program and a first and a second specific programs which are inserted in the data broadcasting
5 program, a total time period between a starting time and a finishing time for broadcasting the
data broadcasting program including a first time period during which the first specific program is
broadcast and a second time period during which the second specific program is broadcast, a
computer reproduction being performed by a receiving apparatus to display the specific program
in the respective time periods, the data broadcast program embodied on the program recording
10 medium has the computer conduct the steps of:

an allotment step for

(a) allotting, with an allocating unit, a part of the broadcasting bandwidth to the first and the second specific programs and the other part of the broadcasting bandwidth to the data broadcasting program for all of time periods other than the first and the second time periods
15 in the total time period, so that the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods is narrower than the other part of the broadcasting bandwidth allotted to the data broadcasting program for all time periods other than the first and the second time periods, all of the time periods other than the first and the second time periods being longer than the time period
20 necessary for transmitting a program data of the first specific program and a program data of the second specific program ~~more than~~ at least once during the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods, and

(b) allotting a part of the broadcasting bandwidth to the first specific program
25 and the other part of the broadcasting bandwidth to the second specific program for the first and second time periods;

a script instruction generation step for (i) generating, with a script generator, (a) when a receiving apparatus receives a first event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the first specific
30 program in a storage unit of the receiving apparatus and (b) when receiving a second event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the second specific program in the storage unit, and (ii) generating (a) when receiving a first event message for instructing reproduction, a script instructing the receiving apparatus to reproduce the program data of the first specific program in a case that the

35 program data of the first specific program has been stored in the storage unit and (b) when
receiving a second event message for instructing reproduction, script instructing the receiving
apparatus to reproduce the program of the second specific program in a case that the program
data of the second specific program has been stored in the storage unit, each script being
automatically stored when the receiving apparatus receives the scripts;

40 an event message generation step for generating, with an event message
generator, a plurality of first event messages for instructing storage, a plurality of second event
messages for instructing storage, a first event message for instructing reproduction and a second
event message for instructing reproduction; and

a transmission step for transmitting, with a transmission unit, a normal program
45 that includes a video stream and an audio stream, and

repeatedly transmitting the scripts during the total time period, transmitting (i) the
first event messages for instructing storage before the first time period, the first event message
for instructing reproduction at the starting time of the first time period (iii) the second event
messages for instructing storage before the second time period, and (iv) the second event
50 message for instructing reproduction at the starting time of the second time period,

(b) in accordance with the result of allotment by the allotment step,

(i) repeatedly multiplex the program data of the data broadcasting
program with the normal program based on a data carousel transmission method during all of
time periods other than the first and the second time periods in the total time period, and

55 (ii) repeatedly multiplex the program data of each of the first and the
second specific program during the total time period;

wherein, the first and the second specific programs have the program data that relates to first and second commercial messages, respectively, which are inserted in the normal program, and

60 the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

20. (Currently Amended) A program recording medium which is readable [[for]] by a computer in a broadcasting apparatus, the broadcasting apparatus transmits a data broadcasting program and a first and a second specific programs which are inserted in the data broadcasting program, reproduction being performed by a receiving apparatus to display the specific program
5 in the respective time period, a computer program ~~embodied~~ stored, with machine readable instructions, on the program recording medium has the computer conduct the steps of:

an allotment step for

(a) allotting, with an allocating unit, a broadcasting bandwidth for a first time period and a second time period to the first specific program and the second specific program,
10 the first time period and the second time period are included in a total time period between a starting time and a finishing time for broadcasting the data broadcasting program, and (b)
allotting (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second-time period (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the
15 total time period, so that the part of the broadcasting bandwidth allotted to the first specific program for the time period preceding to the first time period is narrower than the broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the first time period, the time period preceding to the first time period being longer than a time period

that is necessary for transmitting a program data of the first specific program more than once
20 during the part of the broadcasting bandwidth allotted to the first specific program for the time
period preceding to the first time period, and (3) a part of the broadcasting bandwidth to the
second specific program for a time period preceding to the second time period in the total time
period, so that the part of the broadcasting bandwidth allotted to the second specific program for
the time period preceding to the second time period is narrower than the broadcasting bandwidth
25 allotted to the data broadcasting program for the time period preceding to the second time period,
the time period preceding to the second time period being longer than a time period that is
necessary for transmitting a program data of the second specific program more than once during
the part of the broadcasting bandwidth allotted to the second specific program for the time period
preceding to the second time period;

30 a script instruction generation step for (i) generating, with a script instruction
generation unit, (a) when a receiving apparatus receives a first event message for instructing
storage, a script ~~for storing~~ of instruction for the receiving apparatus to store program data of the
first specific program in a storage unit of the receiving apparatus and (b) when receiving a
second event message for instructing storage, a script ~~for storing~~ of instruction for the receiving
35 apparatus to store program data of the second specific program in the storage unit and (ii)
generating (a) when receiving a first event message for instructing reproduction, a script
instructing the receiving apparatus to reproduce the program data of the first specific program in
a case that the program data of the specific program has been stored in the storage unit and (b)
when receiving a second event message for instructing reproduction, a script instructing the
40 receiving apparatus to reproduce the program data of the second specific program in a case that
the program data of the second specific program has been stored in the storage unit, each script
being automatically stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event message generator, a plurality of first event messages for instructing storage, a plurality of second event messages for instructing storage, a first event message for instructing reproduction and a second event message for instructing reproduction; and

a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream, and

repeatedly transmitting (i) the first storage instructions before the first time period
50 (ii) the second storage instructions before the second time period (iii) the first reproduction instruction at the starting time of the first time period, and (iv) the second reproduction instruction at the starting time of the second time period, and

(b) in accordance with the result of allotment by the allotment step

(i) repeatedly multiplex the program data of the data broadcasting
55 program during all of time periods other than the first and the second time periods in the total time period, and

(ii) repeatedly multiplex the program data of each of the first specific program during the first time period and the time period preceding to the first time ~~time~~ period; and

60 (iii) repeatedly multiplex the program data of the second specific program during the second time period and the time period preceding to the second time period;

wherein, in accordance with the result of allotment by the allotment step, repeatedly multiplex program data of the first and second specific program with the normal program based on a data carousel transmission method and transmit a first multiplexed result
65 while multiplexing the program data of the first and second specific programs and the script with the normal program and transmitting a second multiplexed result in the preceding time period,

and repeatedly multiplex the program data of the specific first and second programs and the script with the normal program and transmit the second multiplexed result in the reproduction time period,

70 the first and the second specific programs have the program data that relates to first and second commercial messages, respectively, which are inserted in the normal program, and

 the reproduction time period of the specific program is the same as a broadcast time period of the commercial message.

21. (Currently Amended) A recording medium storing a program with instructions that ~~[[is]]~~ are readable ~~[[for]]~~ by a computer in a broadcasting apparatus, the broadcasting apparatus broadcasts a specific program to which a reproduction time period between a starting time and finishing time is specified, the reproduction being performed by a receiving apparatus
5 to display the specific program in the reproduction time period, the program has the computer conduct the steps of:

 an allotment step for allotting, with an allotment unit, a broadcasting bandwidth for the reproduction time period to the specific program and allotting a part of the broadcasting bandwidth for a preceding time period immediately before the reproduction time period to the
10 specific program and the other part of the broadcasting bandwidth to another program, so that the part of the broadcasting bandwidth ~~for the preceding time period allotted to the specific program~~ is narrower than the other part of the broadcasting bandwidth ~~allotted to another program~~, the preceding time period being longer than a time period that is necessary for transmitting a program data of the specific program ~~more than~~ at least once during the part of the broadcasting
15 bandwidth for the preceding time period allotted to the specific program;

a script generation step for generating, with a script generation unit, (a) when receiving apparatus receives an event message for instructing storage, a script ~~for storing of~~ instruction for the receiving apparatus to store program data of the specific program in a storage unit of the receiving apparatus, and (b) when the receiving apparatus receives an event message
20 for instructing reproduction, a script for the receiving apparatus to ~~reproduce~~ perform the reproduction to display the program data of the specific program in a case where the program data of the specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event generation unit, a
25 plurality of event messages for instructing storage and an event message for instructing reproduction;

a transmission step for transmitting, with a transmission unit, a normal program that includes a video stream and an audio stream, and further in accordance with the result of allotment in the allotment step, (a) repeatedly multiplex program data of the other program with
30 the normal program based on a data carousel transmission method and transmit a first multiplexed data prior to ~~result while multiplexing the program data of the specific program and the script with the normal program and transmitting a second multiplexed result in the preceding~~ time period, and repeatedly multiplex the program data of the specific program and the script with the normal program, the program data of the other program and the script with the normal
35 program based on the data carousel transmission method and transmit resultant second multiplexed data in the preceding time period; and (c) repeatedly multiplex the program data of the specific program and the script with the normal program based on the data carousel transmission method and transmit resultant third multiplexed data in the reproduction processing

time period and transmit the resultant second multiplexed ~~result~~ data in the ~~reproduction~~
40 preceding time period; and

a control step ~~operable~~ for controlling, with a control unit, [[a]] the transmission
unit to transmit the event messages for instructing storage in the preceding time period and to
transmit the event message for instructing reproduction at the starting time,

wherein the specific program has the program data that relates to a commercial
45 message which is inserted in the normal program, and

the reproduction time period of the specific program is the same as a broadcast
time period of the commercial message.

22. (Currently Amended) A recording medium storing program with instructions that
[[is]] are readable [[or]] by a computer in a broadcasting apparatus, the broadcasting apparatus
transmits a data broadcasting program, and a first and a second specific programs which are
inserted in the data broadcasting program, a total time period between a starting time and a
5 finishing time for broadcasting the data broadcasting program including a first time period
during which the first specific program is broadcast and a second time period during which the
second specific program is broadcast, reproduction being performed by a receiving apparatus to
display the specific program in the respective time periods, the program has the computer
conduct the steps of:

10 an allotment step for

(a) allotting, with an allocating unit, a part of the broadcasting bandwidth to
the first and the second specific programs and the other part of the broadcasting bandwidth to the
data broadcasting program for all of time periods other than the first and the second time periods
in the total time period, so that the part of the broadcasting bandwidth allotted to the first and the

15 second specific programs for all time periods other than the first and the second time periods is narrower than the other part of the broadcasting bandwidth allotted to the data broadcasting program for all time periods other than the first and the second time periods, all of the time periods other than the first and the second time periods being longer than the time period necessary for transmitting a program data of the first specific program and a program data of the
20 second specific program ~~more than~~ at least once during the part of the broadcasting bandwidth allotted to the first and the second specific programs for all time periods other than the first and the second time periods, and

(b) allotting a part of the broadcasting bandwidth to the first specific program and the other part of the broadcasting bandwidth to the second specific program for the first and
25 the second time periods;

a script instruction generation step for (i) generating, with a script generator, (a) when a receiving apparatus receives a first event message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the first specific program in a storage unit of the receiving apparatus and (b) when receiving a second event
30 message for instructing storage, a script ~~for storing of instruction for the receiving apparatus to store~~ program data of the second specific program in the storage unit, and (ii) generating (a) when receiving a first event message for instructing reproduction, a script for the receiving apparatus to reproduce the program data of the first specific program in a case that the program data of the specific program has been stored in the storage unit and (b) when receiving a second
35 event message for instructing reproduction, a script for the receiving apparatus to reproduce the program data of the second specific program in a case that the program data of the second specific program has been stored in the storage unit, each script being automatically stored when the receiving apparatus receives the scripts;

an event message generation step for generating, with an event message
40 generator, a plurality of first event messages for instructing storage, a plurality of second event
messages for instructing storage, a first event message for instructing reproduction and a second
event message for instructing reproduction; and

a transmission step for transmitting, with a transmission unit, a normal program
that includes a video stream and an audio stream, and

45 (a) repeatedly transmitting the scripts during the total time period,
transmitting the first event messages for instructing storage before the first time period (ii) the
first event message for instructing reproduction at the starting time of the first time period (iii)
the second event messages for instructing storage before the second time period, and (iv) the
second event message for instructing reproduction at the starting time of the second time period,

50 and

(b) in accordance with the result of allotment by the allotment step,

(i) repeatedly multiplex the program data of the data broadcasting
program during all of time periods other than the first and second time periods in the total time
period, and with the normal program based on a data carousel transmission

55 (ii) repeatedly multiplex the program data of each of the first and the
second specific programs during the total time period with the normal program;

wherein, the first and the second specific programs have the program data that
relates to first and second commercial messages, respectively, which are inserted in the normal
program, and

60 the reproduction time period of the specific program is the same as a broadcast
time period of the commercial message.

23. (Currently Amended) A recording medium storing a program with instructions that ~~[[is]]~~ are readable ~~[[for]]~~ by a computer in a broadcasting apparatus, the broadcasting apparatus transmits a data broadcasting program and a first and a second specific programs which are inserted in the data broadcasting program, reproduction being performed by a
5 receiving apparatus to display the specific program in the respective time period, the program has the computer conduct the steps of:

an allotment step for (a) allotting, with an allocating unit, a broadcasting
bandwidth for a first time period and a second time period to the first specific program and the second specific program, the first time period and the second time period are included in a total
10 time period between a starting time and a finishing time for broadcasting the data broadcasting program, and (b) allotting (1) a broadcasting bandwidth to the data broadcasting data program in the total time period except for the first time period and the second time period (2) a part of the broadcasting bandwidth to the first specific program for a time period preceding to the first time period in the total time period, so that the part of the broadcasting bandwidth allotted to the first
15 specific program for the time period preceding to the first time period is narrower than the broadcasting bandwidth allotted to the data broadcasting program for the time period preceding to the first time period, the time period preceding to the first time period being longer than a time period that is necessary for transmitting a program data of the first specific program ~~more than at~~
least once during the part of the broadcasting bandwidth allotted to the first specific program for
20 the time period preceding to the first time period, and (3) a part of the broadcasting bandwidth to the second specific program for a time period preceding to the second time period in the total time period, so that the part of the broadcasting bandwidth allotted to the second specific program for the time period preceding to the second time period is narrower than the

broadcasting bandwidth allotted to the data broadcasting program for the time period preceding
25 to the second time period, the time period preceding to the second time period being longer than
a time period that is necessary for transmitting a program data of the second specific program
~~more than~~ at least once during the part of the broadcasting bandwidth allotted to the second
specific program for the time period preceding to the second time period;

a script instruction generation step for (i) generating, with a script instruction
30 generation unit, (a) when receiving a first event message for instructing storage, a script for
~~storing~~ of instruction for the receiving apparatus to store program data of the first specific
program in a storage unit of ~~[[a]]~~ the receiving apparatus and (b) when receiving a second event
message for instructing storage, a script ~~for storing~~ of instruction for the receiving apparatus to
store program data of the second specific program in the storage unit, and (ii) generating (a)
35 when receiving a first event message for instructing reproduction, a script instructing the
receiving apparatus to reproduce the program data of the first specific program in a case that the
program data of the specific program has been stored in the storage unit and (b) when receiving a
second event message for instructing reproduction, a script instructing the receiving apparatus to
reproduce the program data of the second specific program in a case that the program data of the
40 second specific program has been stored in the storage unit, each script being automatically
stored when the receiving apparatus receives the scripts;

~~[[a]]~~ an event message generation step for generating, with an event message
generator, a plurality of first storage instructions, a plurality of second storage instructions, a first
reproduction instruction and a second reproduction instruction; and

45 a transmission step for transmitting, with a transmission unit, a normal program
that includes a video stream and an audio stream and further in accordance with the allotment
step

repeatedly transmitting (i) the first event messages for instructing storage before the first time period (ii) the second event messages for instructing storage before the second time period (iii) the first event message for instructing reproduction at the starting time of the first time period, and (iv) the second event message for instructing reproduction at the starting time of the second time period, during the total time period, and

(b) in accordance with the result of allotment by the allotment unit,

(i) repeatedly multiplexing the program data of the data broadcasting program during all of time periods other than the first and the second time periods in the total time period,

(ii) repeatedly multiplexing the program data of the first specific program during the first time period and the time period preceding to the first time period, and

(iii) repeatedly multiplexing the program data of the second specific program during the second time period and the time period preceding to the second time period; and

wherein, in accordance with the result of allotment by the allotment unit, repeatedly multiplex program data of the first and second specific program with the normal program based on a data carousel transmission method and transmit a first multiplexed result while multiplexing the program data of the first and second specific programs and the script with the normal program and transmitting a second multiplexed result in the preceding time period, and repeatedly multiplex the program data of the specific first and second programs and the script with the normal program and transmit the second multiplexed result in the reproduction time period,

70 the first and the second specific programs have the program data that relates to
first and second commercial messages, respectively, which are inserted in the normal program,
and

 the reproduction time period of the specific program is the same as a broadcast
time period of the commercial message.

24. (Currently Amended) A broadcasting method for reducing television receiver
latencies in displaying an interactive content portion of broadcast television commercials, the
method comprising the steps of:

 assigning a television program to a first time slot and a commercial to a second
5 time slot immediately after the first time slot;

 allocating a first portion of the available bandwidth of the first time slot to
audiovisual content of the television program;

 allocating a second portion of the available bandwidth of the first time slot to a
specific program having interactive content for a commercial, so that the second portion of the
10 available bandwidth of the first time slot is narrower than the first portion of the available
bandwidth of the first time slot, the first time slot being longer than a time period necessary for
transmitting a program data of the specific program having interactive content for the
commercial ~~more than~~ at least once during the second portion of the available bandwidth of the
first time slot;

15 allocating a first portion of the available bandwidth of the second time slot to the
specific program;

 allocating a second portion of the available bandwidth of the second time slot to
audiovisual content of the commercial;

transmitting the audiovisual content of the television program during the first time
20 slot;

repeatedly transmitting in a carousel format the specific program during the first
time slot;

transmitting the audiovisual content of the commercial during the second time
slot;
25 repeatedly transmitting in a carousel format the specific program during the
second time slot,

transmitting a script for storing the specific program,
transmitting a script for executing the specific program, and
receiving and storing the specific program at the television receiver.

25.-28. (Cancelled)

29. (Currently Amended) A broadcasting apparatus that broadcasts a specific
program to which a reproduction time period between a starting time and a finishing time is
specified, the reproduction being performed by a receiving apparatus to display the specific
program in the reproduction time period, the broadcasting apparatus comprising:
5 allotment unit operable to allot a broadcasting bandwidth for the reproduction
time period to the specific program and allotting a part of the broadcasting bandwidth for a
preceding time period immediately before the reproduction time period to the specific program
and the other part of the broadcasting bandwidth to another program;

script generation unit operable to generate (a) when the receiving apparatus
10 receives an event message for instructing storage, a script of instruction for the receiving
apparatus to store ~~for storing~~ program data of the specific program in a storage unit of the

receiving apparatus, and (b) when the receiving apparatus receives an event message for
instructing reproduction, a script of instruction for the receiving apparatus to reproduce to
display the program data of the specific program in a case where the program data of the specific
15 program has been stored in the storage unit, each script being automatically stored when the
receiving apparatus receives the script;

event message generation unit operable to generate the event message for
instructing storage and the event message for instructing reproduction;

transmission unit operable to transmit a normal program that includes a video
20 stream and an audio stream, and further in accordance with the result of allotment by the
allotment unit, repeatedly multiplex program data of the other program with the normal program
based on a data carousel transmission method and transmit a first multiplexed result while
multiplexing the program data of the specific program and the script with the normal program
and transmitting a second multiplexed result in the preceding time period, and repeatedly
25 multiplex the program data of the specific program and the script with the normal program and
transmit the second multiplexed result in the reproduction time period, and repeatedly transmit,
as an event message ~~independent of the specific program~~, each script generated by the script
generation unit in a cycle different from a cycle of the specific program; and

control unit operable to control the transmission unit to transmit the event
30 message for instructing storage generated by the event message generation unit in the preceding
time period and to transmit the event message for instructing reproduction generated by the event
message generation unit at the starting time,

wherein the specific program has the program data that relates to a commercial
message which is inserted in the normal program, and

35 the reproduction time period of the specific program is the same as a broadcast
time period of the commercial message.